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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,919	04/09/2002	James Anthony Larkin	7038.3010.001	1465

7590 05/17/2004

Robert L Stearns
5291 Colony Drive North
Saginaw, MI 48603

EXAMINER

SY, MARIANO ONG

ART UNIT	PAPER NUMBER
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3683

DATE MAILED: 05/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/019,919

Applicant(s)

LARKIN ET AL.

Examiner

Mariano Sy

Art Unit

3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-32 is/are pending in the application.
- 4a) Of the above claim(s) 25-32 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-22 is/are allowed.
- 6) ☒ Claim(s) 12-18 is/are rejected.
- 7) ☒ Claim(s) 23 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 27, 2004 has been entered.

2. The terminal disclaimer filed on February 27, 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent Number 6,712,184 B2 (Application No. 09/995,935) has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

Art Unit: 3683

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 12-15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over C.E. Strain et al. (U.S. Patent Number 3,233,704) in view of Bunker (U.S. Patent Number 6,305,510 B1).

Re-claims 12 and 13 C.E. Strain et al. disclose, as shown in fig. 1-4, a method of mounting a disc brake system comprising: providing at least one brake disc 22 having braking surfaces on opposite sides of the brake disc; supporting the brake disc on a rotatable mounting hub 24 wherein the brake disc is rotatable and slidable axially relative to the rotatable mounting hub; arranging at least one pair of friction elements on opposite sides of the brake disc operative when actuated to axially displace the brake disc and frictionally engage the braking surfaces of the brake disc; and attaching a plurality of resilient spring members 32 at circumferentially spaced locations on the brake disc slidable axially with the brake disc independently of the mounting hub and exerting a constant bias force from the attachment of the resilient devices on the disc brake to rotatable mounting hub for centering the brake disc relative to the rotatable mounting hub; wherein the resilient device is provided a plurality of resilient spring members attached to and movable with the disc brake independently of the mounting hub.

However C.E. Strain et al. fails to disclose the resilient devices at circumferential equi-spaced positions around the brake disc.

Bunker teaches, as shown in fig. 3, resilient devices 62 attached at circumferential equi-spaced positions around the brake disc.

It would have been obvious to one of ordinary skill in the art to have attached the resilient devices at circumferential equi-spaced positions around the brake disc into the disc brake system of C.E. Strain et al., in view of the teaching of Bunker, in order to have a balance force acting between the mounting hub and the disc brake.

Re-claim 14 C.E. Strain et al. disclose, as shown in fig. 1-4, a method of mounting an axially movable brake disc 22 on a rotatable mounting hub 24 of a disc brake system comprising: providing a resilient device 32 adapted to act between the brake disc and rotatable mounting hub, at circumferentially spaced positions around the brake disc, and symmetrically attaching the resilient device on the brake disc for axial movement with the brake disc independently of the mounting hub and to apply a resilient bias force directed on the brake disc to the rotatable mounting hub.

However C.E. Strain et al. fails to disclose the resilient devices at circumferential equi-spaced positions around the brake disc.

Bunker teaches, as shown in fig. 3, resilient devices 62 attached at circumferential equi-spaced positions around the brake disc.

It would have been obvious to one of ordinary skill in the art to have attached the resilient devices at circumferential equi-spaced positions around the brake disc into the

Art Unit: 3683

disc brake system of C.E. Strain et al., in view of the teaching of Bunker, in order to have a balance force acting between the mounting hub and the disc brake.

Re-claims 15, 17, and 18 C.E. Strain et al. disclose, as shown in fig. 1-4, a disc brake system comprising: a rotatable mounting hub 24; at least one brake disc 22 supported on said rotatable mounting hub for relative axial displacement and for rotation therewith, said brake disc having braking surfaces on opposite sides; at least one pair of friction elements operate when actuated to frictionally engage said brake surfaces of said brake disc; and a resilient device 32, comprises at least one spring 33 having resilient flanges 34 disposed under stress between brake disc and rotatable mounting hub, mounted circumferentially spaced locations to said brake disc and movably axially with said brake disc relative to and independent of said rotatable mounting hub, said resilient device apply a resilient bias force directed from said brake disc to said rotatable mounting hub.

However C.E. Strain et al. fails to disclose the resilient devices at circumferential equi-spaced positions around the brake disc.

Bunker teaches, as shown in fig. 3, resilient devices 62 attached at circumferential equi-spaced positions around the brake disc.

It would have been obvious to one of ordinary skill in the art to have attached the resilient devices at circumferential equi-spaced positions around the brake disc into the disc brake system of C.E. Strain et al., in view of the teaching of Bunker, in order to have a balance force acting between the mounting hub and the disc brake.

Art Unit: 3683

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over C.E. Strain et al.

Re-claim 16 C.E. Strain et al. disclose, as shown in fig. 1-4, wherein said brake disc includes drive keyways 26 engaging associated drive keys 28 of said rotatable mounting, said resilient device straddling said drive keyways of said brake disc. However C.E. Strain et al. fails to show the exact type of connections between the brake disc and rotatable mounting with regards to the drive keys and drive keyways.

One skill in the art would have modify the connections by reversal between the drive keys and drive keyways on the brake disc and the rotatable mounting, is a matter of design choice or an alternate equivalent connections, since the reversal will not destroy the functionality of slidable axially between the drive keys and drive keyways on the brake disc and the rotatable mounting.

7. Claims 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 19-22 are allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariano Sy whose telephone number is 703-308-3427.

The examiner can normally be reached on Mon.-Fri. from 9:00 A.M. to 3:00 P.M. If

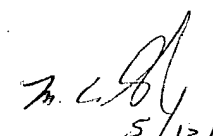
Art Unit: 3683

attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder, can be reached on 703-308-3421. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 M. Sy

May 13, 2004


5/13/2004
MATTHEW C. GRAHAM
PRIMARY EXAMINER
GROUP 310